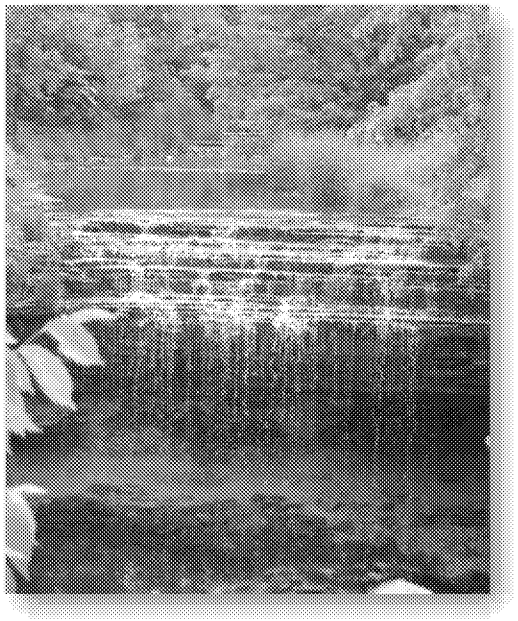
APPROACHES TO ADDRESSING GROUNDWATER IMPACTS

May 26, 2015

Russ Rasmussen
Administrator, Water Division
Department of Natural Resources

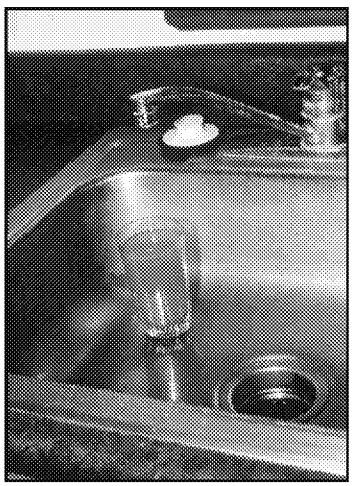
Agenda

- Welcome & Introductions
- DNR Approach
- EPA Petition
- Discussion
- Next Steps



Why are we here?

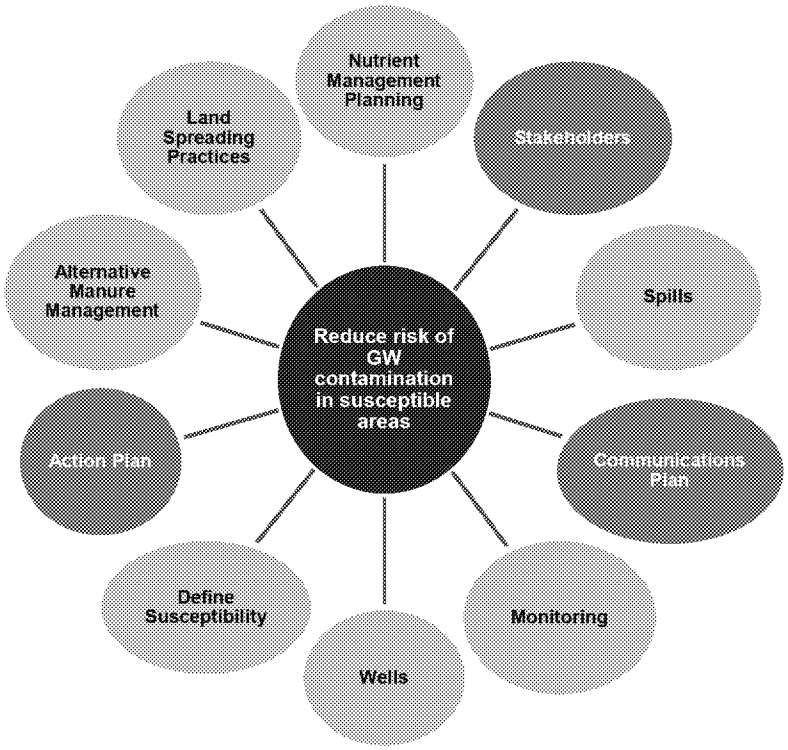
- Well contamination issues
- Request to EPA
- Sharing approaches and perspectives
- Next steps



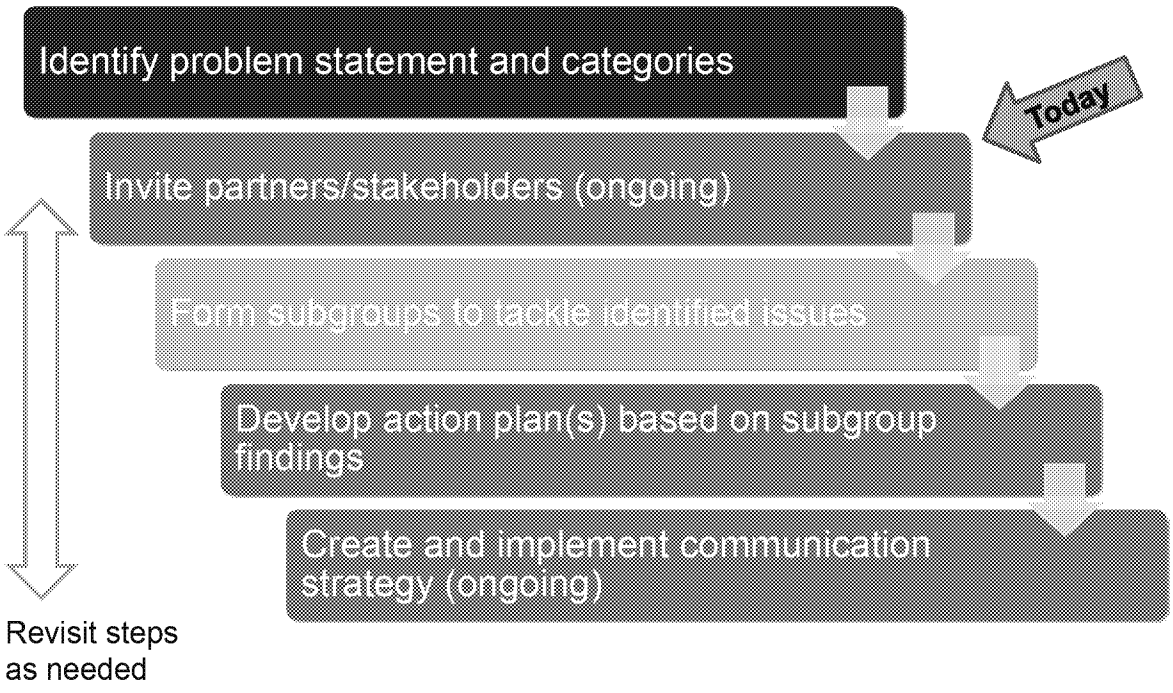
Where are we going?

- Internal group formed
- Pull in partners and stakeholders
- Identify sensitive areas
- Explore options

Identifying the Issues…



Steps to address identified issues…

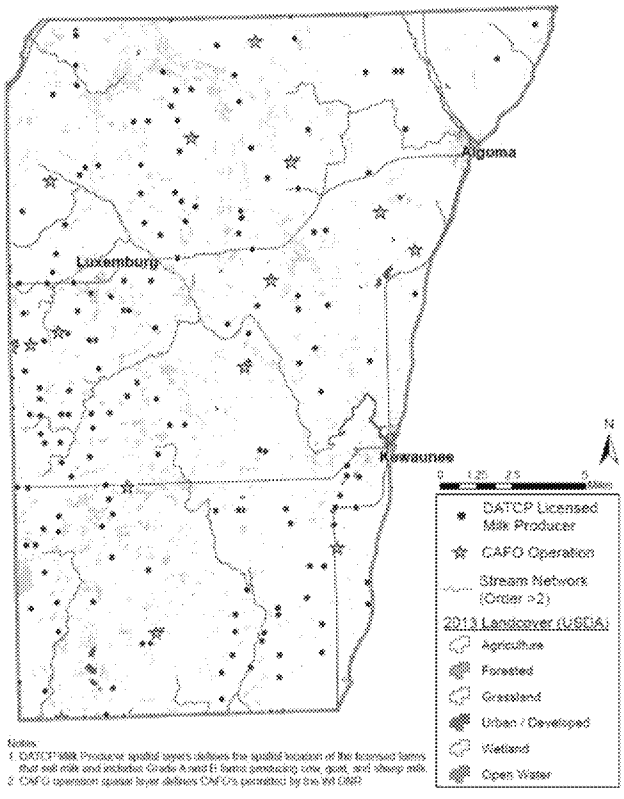


CURRENT DNR INFORMATION

FARMS, SPATIAL MAPS, NMPS, CURRENT REGULATIONS

Andrew Craig
NPS Planning Coordinator
Department of Natural Resources

Dairy Producer and CAFO Locations in Kewaunee County

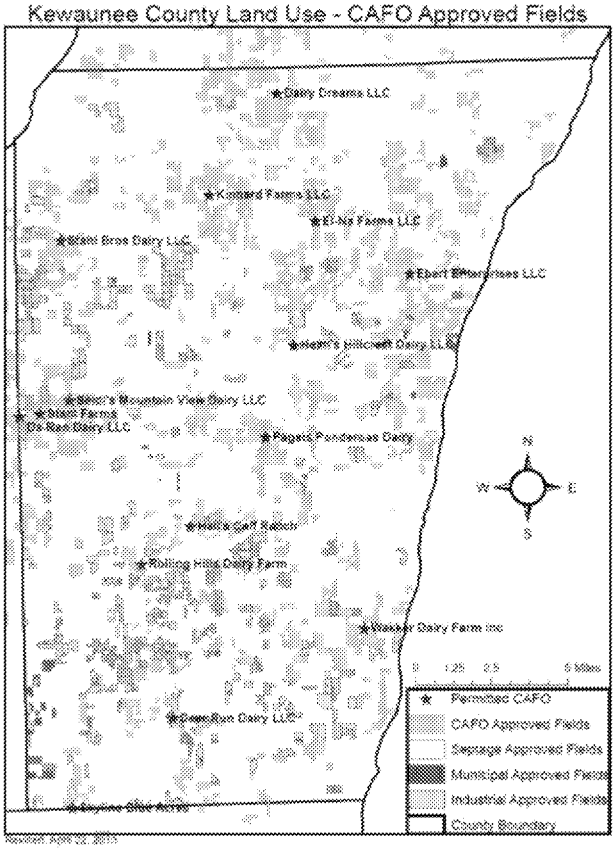


Notes:
1. DATCP Milk Producer spatial layer defines the spatial location of the licensed farms that sell milk and includes Grade A and B farms producing cow, goat, and sheep milk.
2. CAFO operation spatial layer defines CAFOs permitted by the WPDES

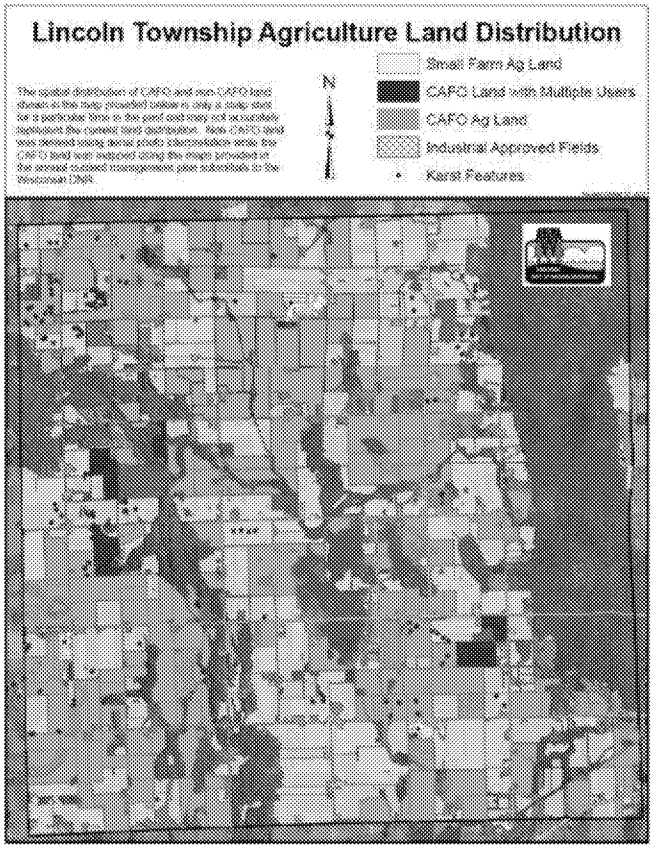
As of April 2013:

15 WPDES Permitted Operations
190 Non-permitted Operations

Kewaunee County Land Use - CAFO Approved Fields



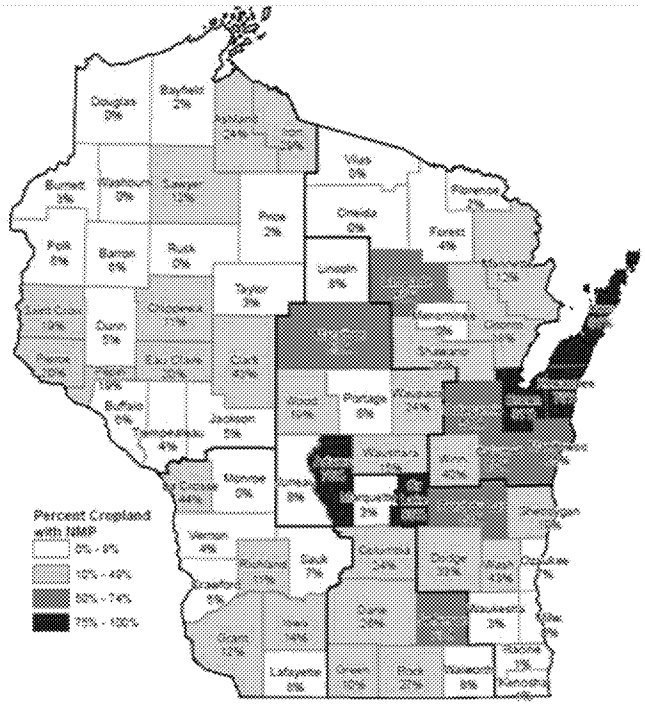
April 2013



October 2012

Percent of County's Cropland with 2013 NM Plans

(calculated from county reported acres and 2007 National Agricultural Statistics Service data of WI county cropland)



NMP and Farm information - 2013

Kewaunee County

- **130,000 total acres of ag land**
- **103,000 acres under NMP = 79%**
- **15 CAFOs and 190 non-CAFO**
- **15 CAFOs = 50,000 total acres under NMP = 48%**
  - 50,000/103,000 acres
- **15 CAFOs used 30,000 acres* to apply manure = 29%**
  - 30,000/103,000 acres

* = Some manure generated by Kewaunee County CAFOs is applied in adjacent counties (Door, Brown, Manitowoc) and manure generated in adjacent counties may be land applied in Kewaunee County

Current Statewide Ag Rules

- **CAFO's must comply with NR 243 + NR 214 requirements and also NRCS technical standard 590**
  - DNR is lead agency for CAFOs
- **Unless identified as a CAFO, smaller farms do not have to meet NR 243 or NR 214; they must meet NR 151 which requires having and implementing a NMP***
- **Via ATCP 50, NMPs must be consistent with NRCS 590 (2005) NM technical standard**
  - Typically, County Land Conservation Departments are lead agency for small farms
  - DNR response for manure spills, NOD's, well contamination cases

* = Not all small farms have or implement a NMP

Setbacks for Small Farms with 590 NMP

Restrictive Feature	Setback
Community Public Water Supply Well	50 feet**
Non-Community Water Supply Well	50 feet**
Inhabited Dwelling	None
Depth to Groundwater & Bedrock	None
Direct Conduit to Groundwater*	200 feet**
Navigable Waters & Conduits*	None
Wetland*	None
SWQMA – Winter	300 feet
Locally Identified Areas – Winter Areas that convey nutrients, via runoff, to GW conduits or surface waters	TBD

*Manure shall not be spread on these features.
**200 foot setback only required for upslope areas unless effectively incorporated within 72 hours.

** = Not all small farms have a NMP

Other Small Farm Requirements – NRCS 590

- **Right Place**
  - No manure within surface waters, established concentrated flow channels (grass waterways), non-harvested permanent vegetative buffers, non-farmed wetlands
  - No manure entry/discharge to drain tiles
- **Right Time**
  - No manure ponding or runoff from application field; no application on saturated soils in SWQMA
- **Right Rate**
  - Applications consistent with UW pub A2809; soil and manure sampling
  - Reduced rates for < 20 inches bedrock, < 12 inches to groundwater
- **Winter Spreading Plan**
  - avoid prohibited areas
  - use P Index to ID low risk fields for winter runoff to areas of concentrated flow and surface waters
- **Document methods, timing, form and rates of application**

Setbacks for CAFOs

Restrictive Feature	Setback Inject, Incorporate Tanker	Setback Manure Irrigation
Community Public Well	1000 feet	1000 feet
Private & Non-Community Well	100 feet	250 feet
Inhabited Dwelling*	0 feet	500 feet*
Depth to Groundwater & Bedrock	2 feet	5 feet – all year
Direct Conduit to Groundwater**	100 feet	100 feet
Navigable Waters & Conduits**	25-100 feet	25-100 feet
Wetland**	25 feet	25 feet
Winter – SWQMA** + GW conduits	300 feet	300 feet
Winter - Depth to Bedrock	5 feet	5 feet
Winter – Areas of Channelized Flow	200 feet	200 feet

*Distance to dwellings may be reduced with written consent of any affected owners and occupants.
**Manure shall not be spread on these features.

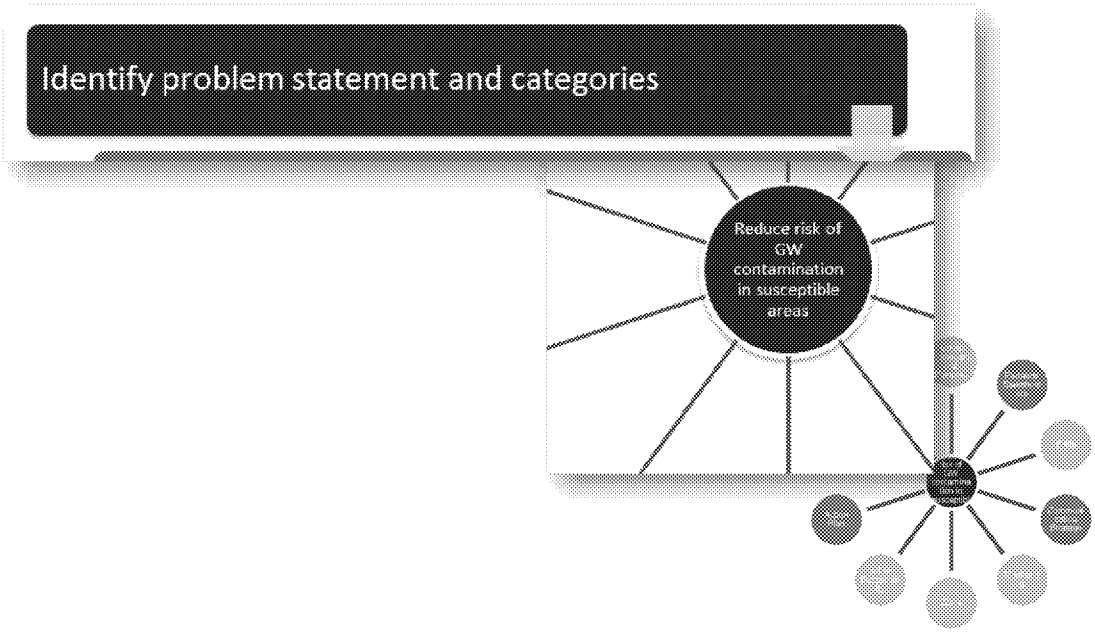
Other CAFO Requirements

- **Right Place**
  - No manure within surface waters, established concentrated flow channels (grass waterways), non-harvested permanent vegetative buffers, non-farmed wetlands
  - ID drain tiles; No manure entry/discharge to drain tiles
  - No fecal contamination of a well
- **Right Time**
  - No manure ponding or runoff from application field; no application on saturated soils
- **Right Rate**
  - Manure and Soil Sampling required
  - Applications consistent with UW pub A2809
- **Winter Spreading Plan**
  - Avoid prohibited areas
  - No applications Feb – March; when snow is melting and running off field
  - ID low risk fields for winter runoff to areas of concentrated flow and surface waters
  - Fields must have Winter Acute PI of 4 or less
  - Process Wastewater must meet NR 214.17(2) to (6)
- **Document and report methods, timing, form and rates of application**

IDENTIFYING THE PROBLEM STATEMENT

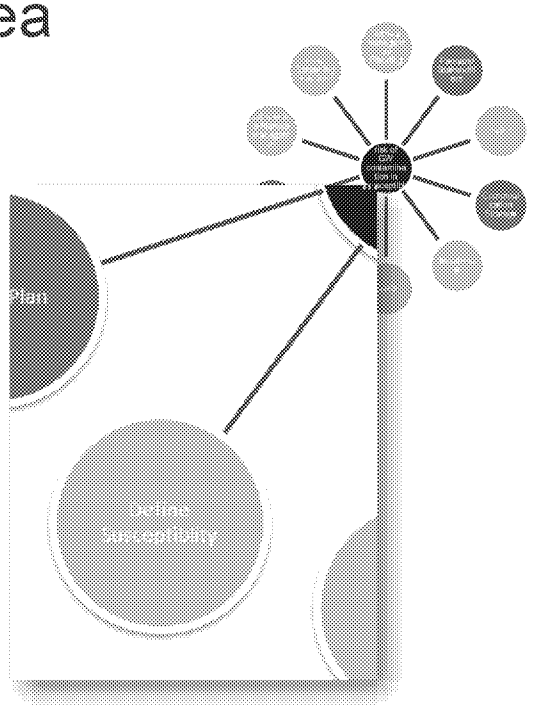
Bill Phelps
Agricultural NPS Implementation Coordinator
Department of Natural Resources

Step 1:


Identify problem statement and categories
Reduce risk of GW contamination in susceptible areas

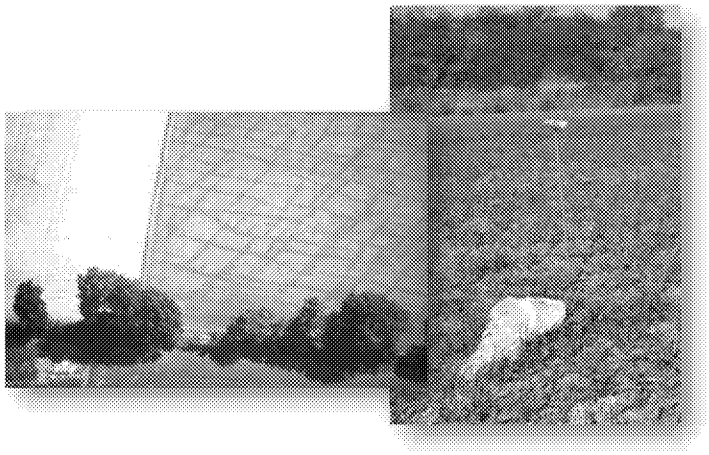
First: Define the Area

Before jumping to solutions, start with identifying the geographic area



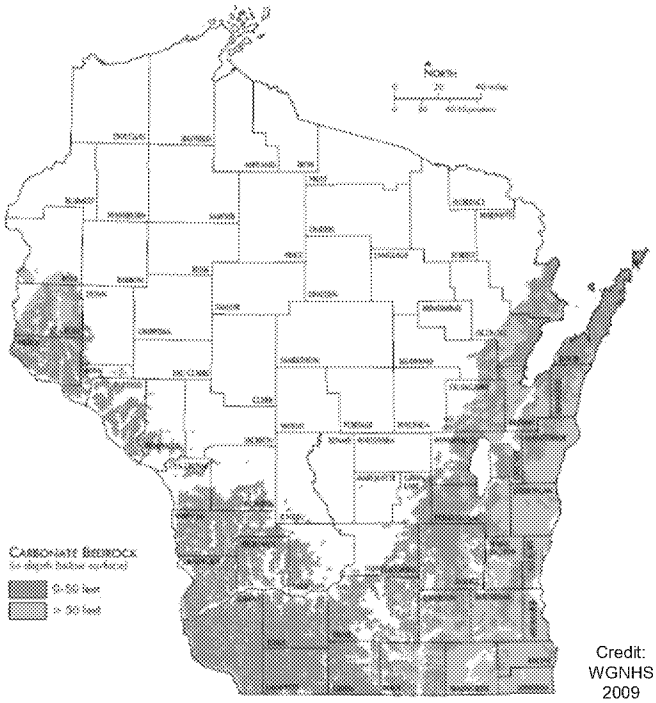
Factors for Determining Susceptibility

1. Depth to Bedrock or Groundwater
2. Soil Type & Characteristics
3. Land Use



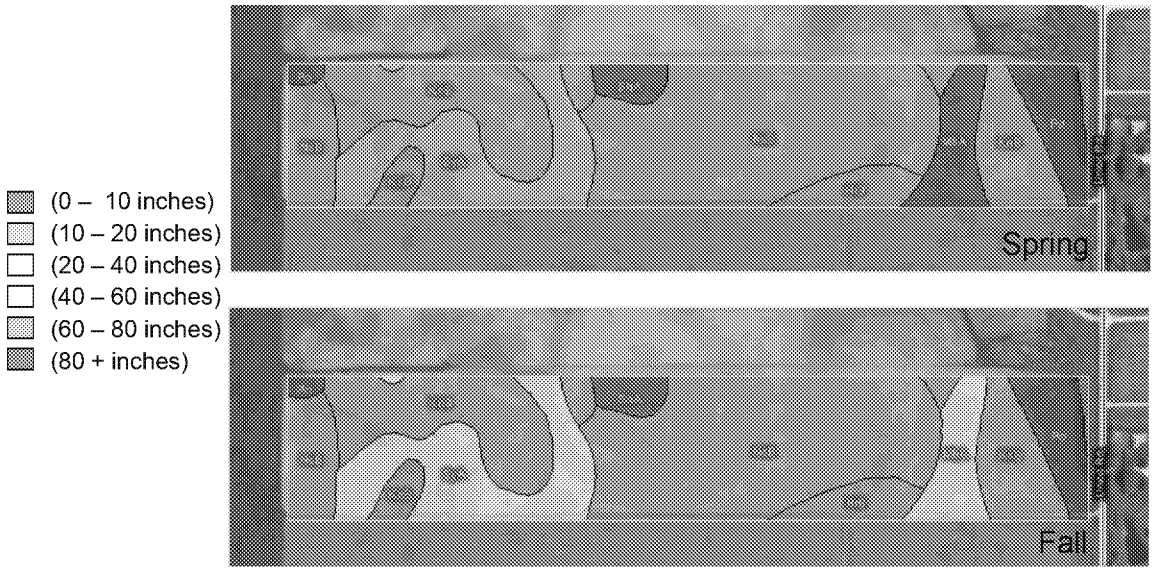
Depth to Bedrock…

Influences the potential for groundwater contamination based on the available soil for treatment purposes



Credit: WGNHS 2009

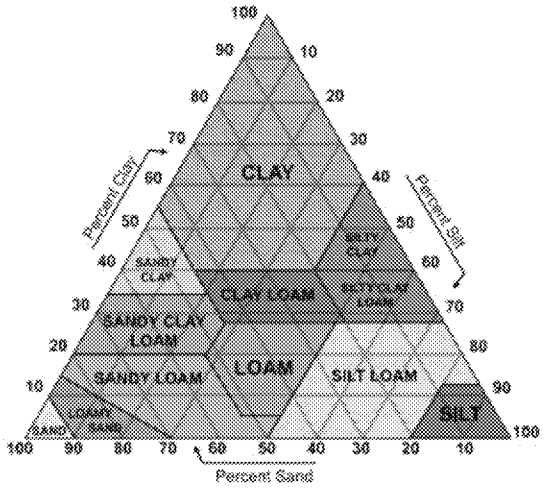
… or Groundwater



Whichever is more restricting

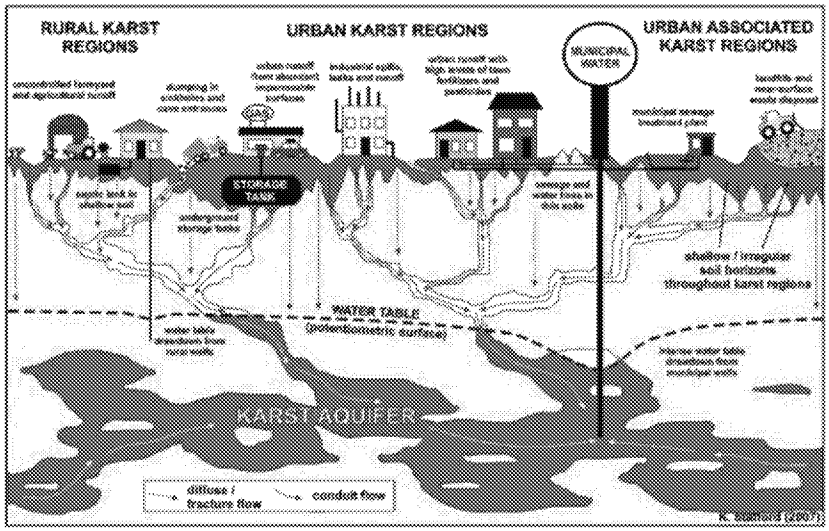
Soil Type & Characteristics

- Determine water holding capacity
- Infiltration rates
- Filtering abilities
- Treatment capabilities



Land Use

Activities occurring on the landscape will have an impact on what contaminants are being introduced to the system.

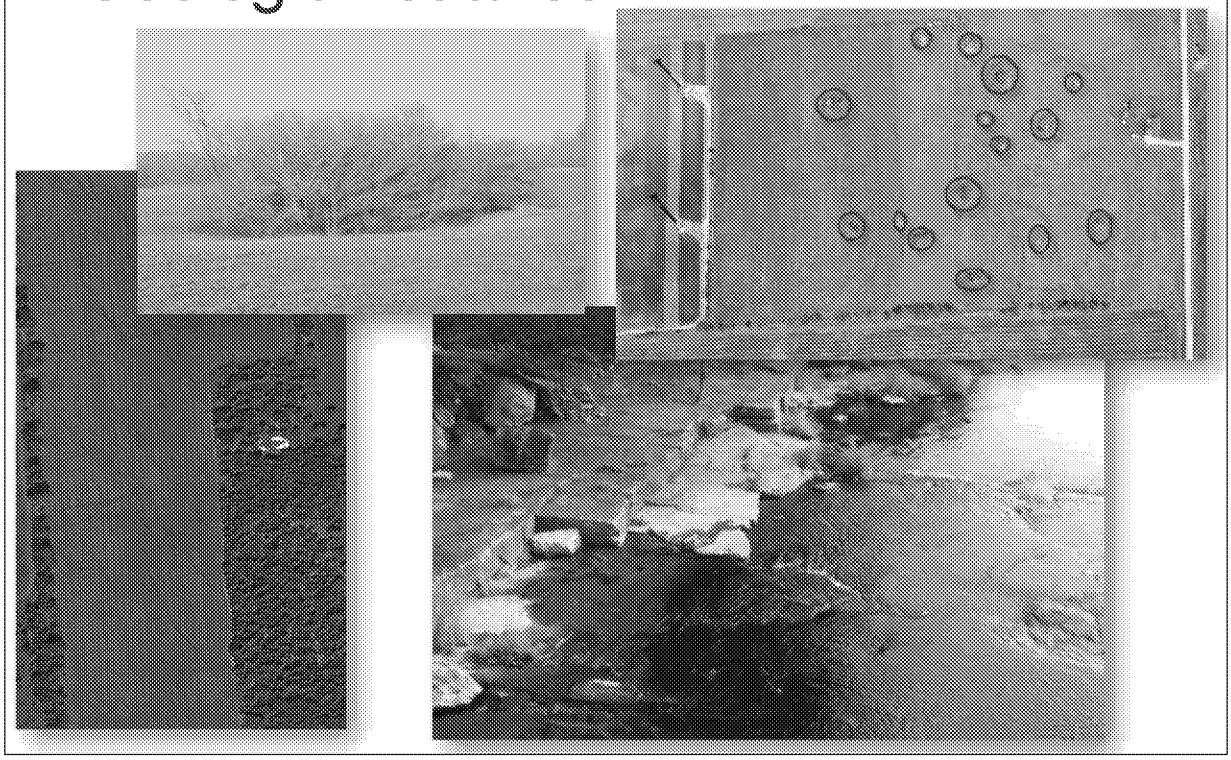


Over-riding Considerations

Regardless of depth to bedrock/groundwater, soil type or land use, these factors can increase the potential for susceptibility:

- Conduits to Groundwater
- Weather

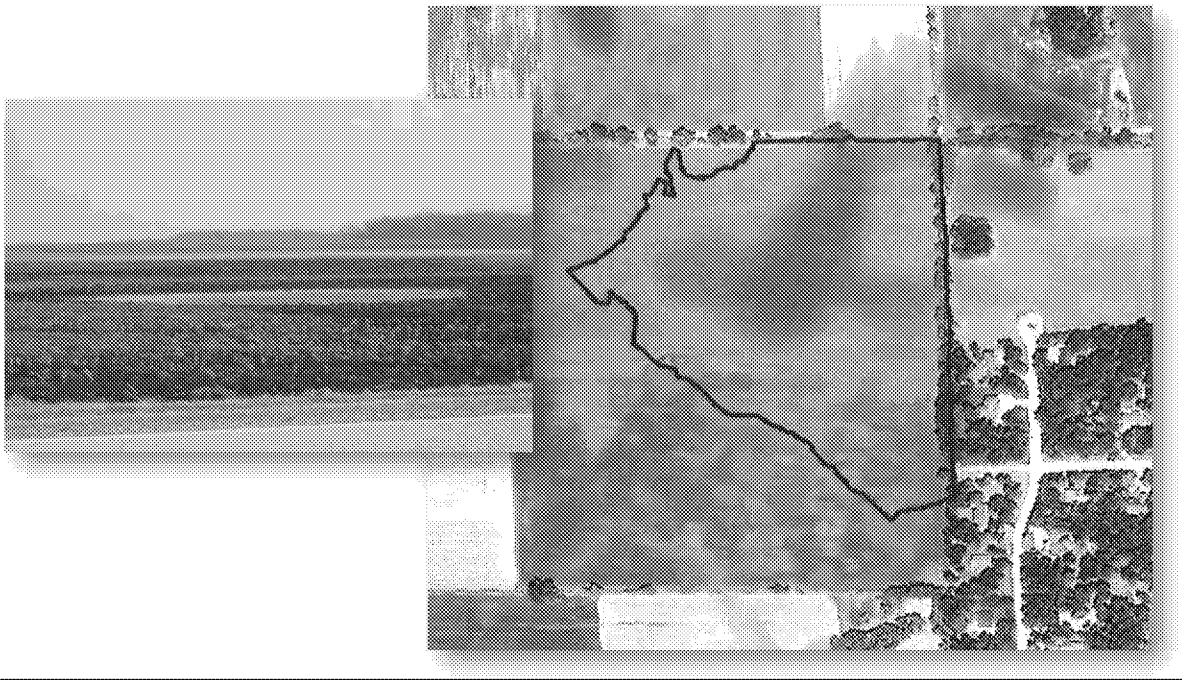
Geologic Features



Manmade Features

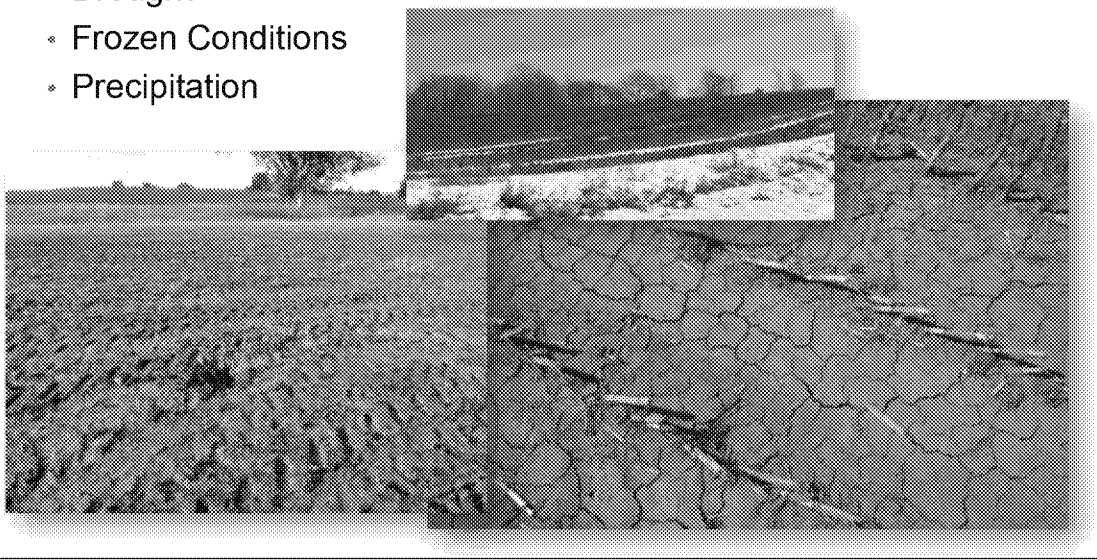
Channels that Drain to Features

Drainage Areas



Weather

- Weather conditions can change the way soils react in certain situations, increasing or decreasing susceptibility.
  - Drought
  - Frozen Conditions
  - Precipitation



Contamination Vulnerability Ranking

Northeast WI Karst Task Force Report, 2007:

Level of protection required	Criterion	Relative vulnerability to contamination
1	Less than 5 feet (60 inches) to carbonate bedrock, *and/or* closed depressions or any drainage areas that contribute water to sinkholes/bedrock openings.	Extreme
2	5-15 feet to carbonate bedrock	High
3	>15-50 feet to carbonate bedrock	Significant
4	Greater than 50 feet to carbonate bedrock	Moderate

Recommend also including depth to groundwater

Next Steps

- Apply criteria to identify a geographic area
- Begin reviewing other components with stakeholders